



LED lighting- ***Getting the information
to support the right products at the
right time***

Market Introduction Workshop- July,
2012

This Presentation Provides:

- Who am I and why am I talking to you
- Energy Trust experience/approach with solid state lighting
- Discuss how utilities, manufacturers, and the distribution channel can promote the right LED products in the right niches- where LEDs have clear advantages over incumbent technology.

I am presenting Energy Trust perspective but there's a lot of overlap with what I've heard from other program deliverers.

What is Energy Trust of Oregon?

- Efficiency and renewable program delivery for Investor Owned electric and gas utility electric customers in Oregon- roughly 70% of state electric load.
- Independent nonprofit organization
- **Serves customers of Portland General Electric, Pacific Power**, NW Natural and Cascade Natural Gas **in Oregon**
- Serves customers of NW Natural in Washington

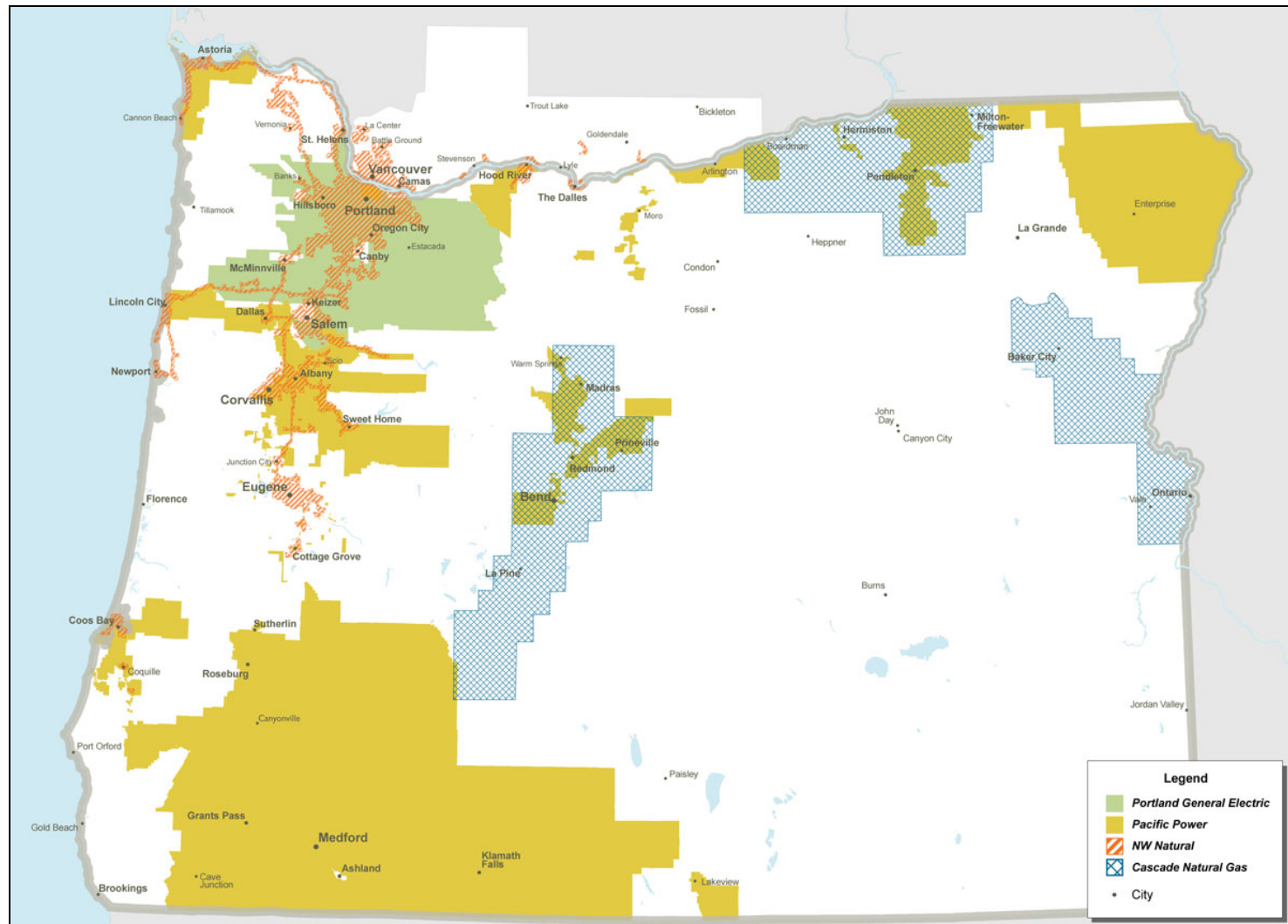
Helps keep energy costs as low as possible, creates jobs and builds a sustainable energy future

My role: Director of Planning and Evaluation

- Includes aspects of emerging tech and strategic direction
- Not an engineer- *Licensed Professional Dilettante*



Energy Trust service territory



Our Approach to LEDs

- *Energy Trust is not doing R&D to develop LEDs*
 - Rely on testing and rating from Feds, manufacturers, NEEA.
 - Avoid local “demonstration for demonstration’s sake” on premature products. Field test compelling products that are shown by prior tests to meet our criteria, then we step up the volume
- *LED is not the next CFL-*
 - **The next something else altogether**
- Our goals:
 - Advance the product strategically
 - Cost-effectiveness to utility system and society
 - Consumer value for their investment- today!

Our Approach to LEDs

We are Looking to Incent LEDs with these features

- Reliable product- tested, rated, good results
- Societal B/C that could get to 1 soon (e.g., .9)
 - Considers ALL costs and quantifiable benefits.
 - Some products are “there”.
 - Some need to come down 50% in cost and increase lumens.
 - Some are poorly conceived or designed products
- Prefer multiple manufacturers.
- Need clear, stable local supply chain- avoid “hit and run”

Energy Trust's Strategy

- As stated above, rely on manufacturers and DOE to do the test specification and testing
- Rely on Energy Star and DLC for equipment qualification/specifications
- Approve niches (e.g., refrigerated warehouse lighting) one at a time- for now
- Apply cost-effectiveness tests to specific products in specific niches-. *it has to save enough "more" to justify the cost.*
 - *E.G., for A lamps in non-dimming sockets, compare to CFLs- suitable, cheap and efficient.*
 - *For dimming circuits, CFLs are a poor competitor due to reputation- so incandescents are the competition- when LEDs are predictable and reliable for dimming.*

Examples of Niches Where We are Undeveloped

Phase I (2010)

- **Recessed downlights** for home and business.

Phase II (2011)

- **Screw in LEDs for commercial** (quasi-prescriptive)- most go to difficult access, display, other applications where LED has advantage over CFL.
- Freezer case lights

Examples of Niches Where We are Undeveloped

Phase III (2012)

- **Outdoor non-street lighting** (custom). Efficient competition is mostly electronically ballasted metal halide or T5HO, almost as expensive, so LED can be cost-effective.
 - Canopies for gas stations
 - Parking lot lighting
 - Exterior wall mount
 - **Neon retirement** (assume 10 year remaining life)

Niches Where We are Engaging Now or Soon

Phase IV

- Exterior walkway lights (new 8")
- Qualified 2x4 recessed troffers for retrofit *where the number of fixtures is reduced but light level not compromised*- would require LED or expensive high quality T8 fixture.
- Extremely high bay. Directionality is an advantage.
- Flood lighting. May be cost effective for some types.

We Are Waiting on These Niches:

- **Street lighting-** but not for long
- **Most HID replacement-** competition from T5HO
- **A-lamp-** no advantage, waiting on dimming issues
- **Office type stick fluorescent fixtures-** LED only with reduced number of fixtures.
- **Most home lighting-** not enough hours.

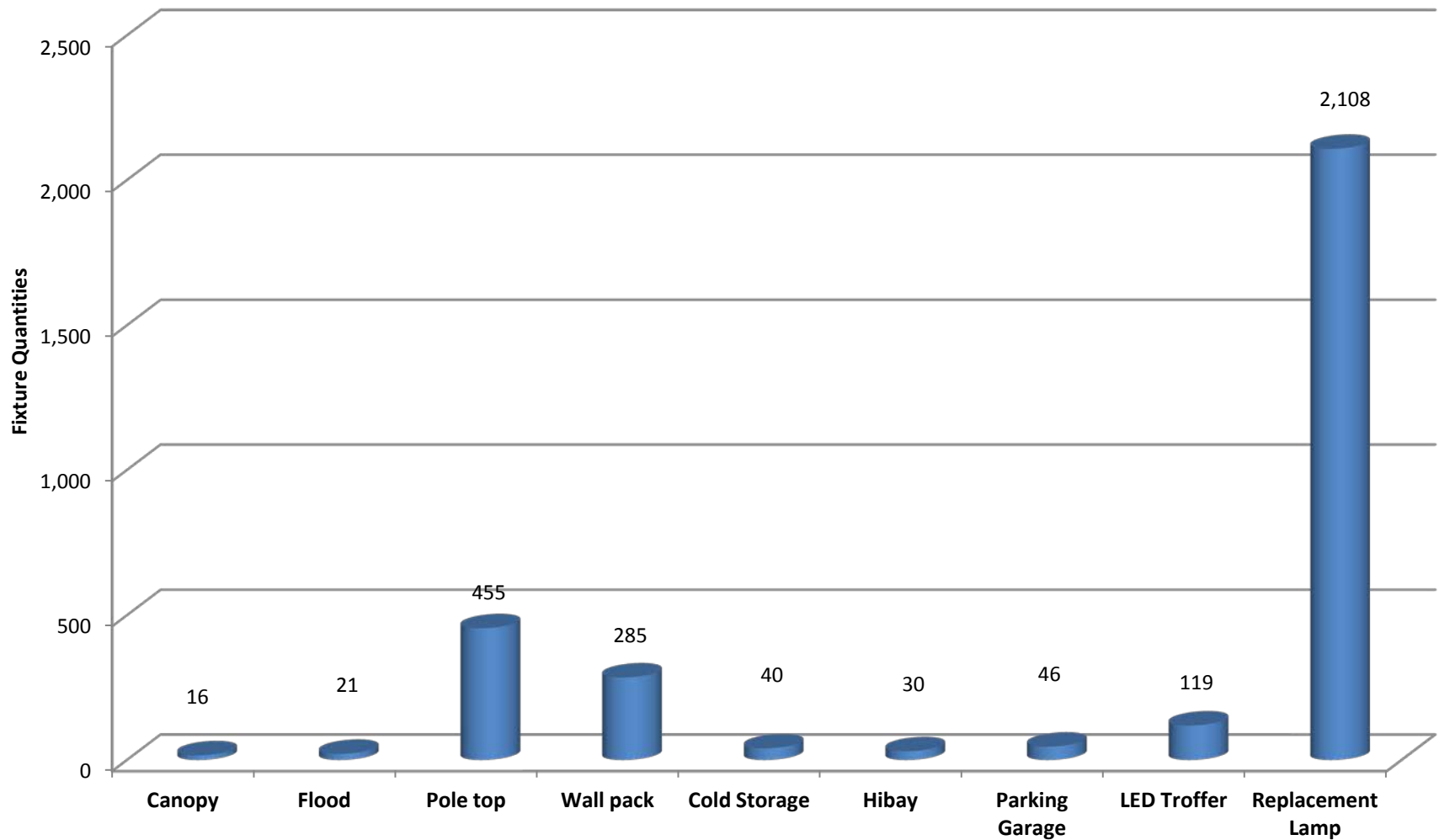
Why Wait?

- LED industry advances when the products that are closest to “ready for prime time” are mass produced.
- Massive support for products that cost too much and don't provide adequate light/\$ stymies development.
- Need to encourage improvement.

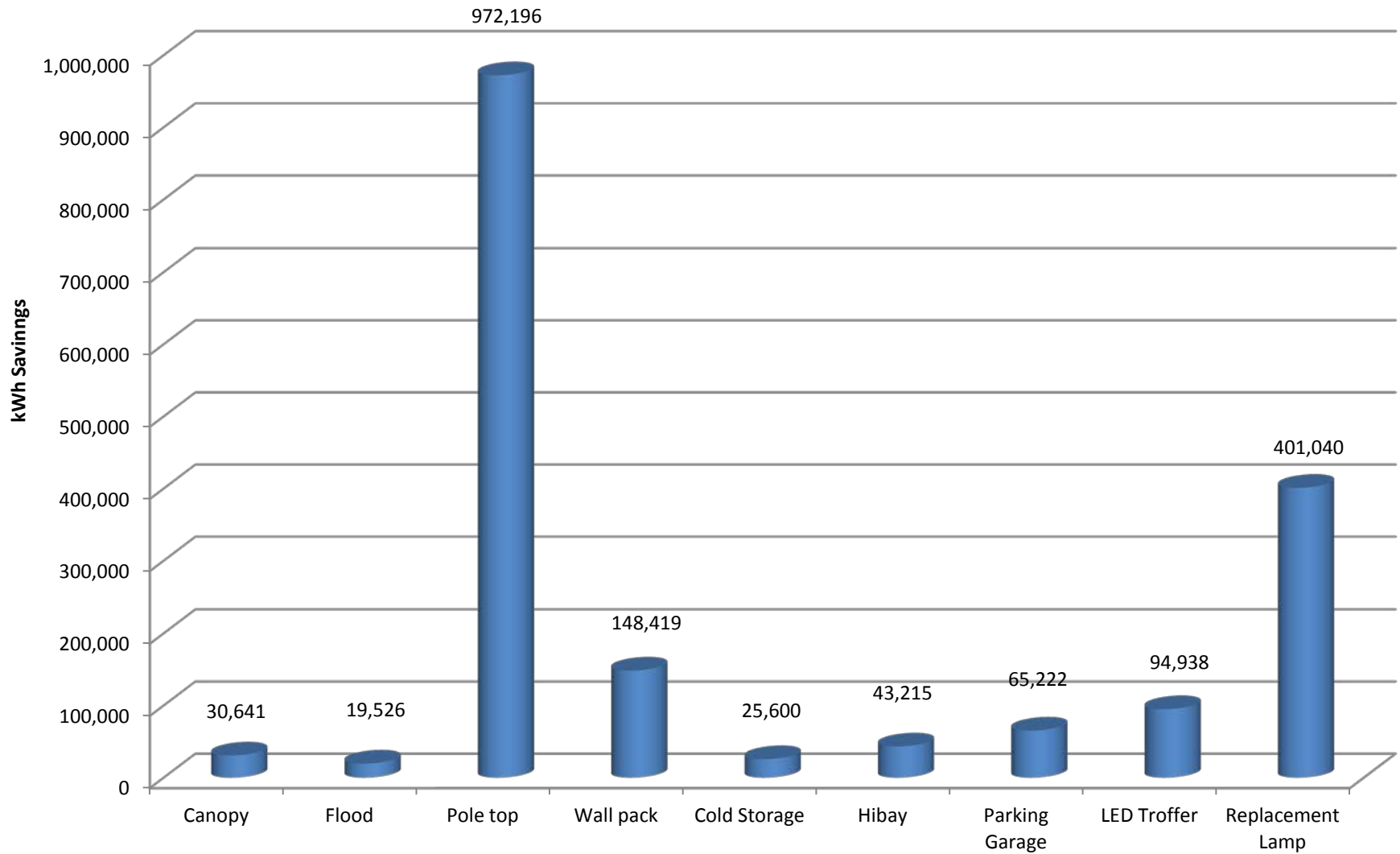
Savings to Date- Commercial &Industrial

Application saved	MWh/yr
Recessed Downlight	36
Commercial screw-in	2,200
Parking lot	1,000
Neon replacement	16

LED Fixture Category by Fixture Quantities – Committed in 2012 thru May



LED Fixture category by kWh Savings – Committed in 2012 thru May



Info From the Feds To Date- Excellent!

Info on solid state lighting from the Feds is better than their help for any other efficient technology, ever!

- Focus on the facts, not the hype
 - Working proceeding on:
 - clear standards,
 - test data,
 - data basing of performance and specs by model and
 - consumer info
- each in separate, strategically related ways.

More Information Would Help

- **Feds: Clarity on when T-12's & incandescents are gone** due to fed standards- will help utilities focus on next thing.
- **Feds and supply chain. Describe/rate applicability and performance of equipment for niches-** the next 2 years is a niche play.
- **Feds and supply chain:** Use public education resources and influence with manufacturers to get the message out that **lighting is measured in lumens, not watts**. Good work on this with Lighting Facts!

More Information Would Help

Feds and Supply chain:

- **Emphasize CRI** in ratings, communication
- **List total harmonic distortion** on Lighting Facts for LEDs that may be used with dimmers.
- **Info on dimmer/LED compatibility-** testing, data basing, labeling
- **Heat ratings** for small PARs

More Information Needs

- **Drivers-** compatibility, durability
- **Accelerated lifetime testing.**
- Focus on **higher lifetimes** as a potential advantage for LEDs
- Develop free **mobile light meter app?**
- **Single, searchable online resource** merging lighting facts, ES, Designlights.
- Databased products are tested, link to tests.



Thank You

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